To: Celia Johnson, Illinois Commerce Commission

From: The Illinois Clean Jobs Coalition Beneficial Electrification/Electric Vehicle Subteam

RE: December 15, 2021 workshop comments

Please find the following comments regarding the material shared at the December 15, 2021 workshop.

1.) **Rate Design**

Presentations of various parties given at workshops on December 15 explored fleet perspectives on electrification, including some exploration of rate design. However, the nexus between fleet-oriented considerations and rate design was addressed only to a limited extent, and in these comments we seek to expand on that nexus.

Rate design focuses largely on ensuring that a utility's revenue requirement is met, one way or another. Through rates, costs are spread among customers' use in a manner that is considered just and reasonable. However, the rates that customers are charged for service aren't solely a cost recovery mechanism; they are also an incentive that shapes consumption behavior over various timescales. Specifically, over the long term, electric pricing provides an incentive that affects how customers go about charging; for example, pricing can positively influence whether or not EV drivers charge at times of high renewable availability, thus successfully helping to integrate more clean energy resources, or whether they install behind-the-meter resources, such as fixed storage and distributed solar. Over shorter time horizons, such as over the course of the day, electric pricing affects when and how customers use grid power and/or deploy any DERs that they have installed.

In the context of truck and bus electrification, the price signal provided by electric pricing cannot be ignored or treated as a secondary consideration. We need to achieve a rapid transformation of

the truck and bus sector, which is both a major source of greenhouse gas emissions and one of *the* leading sources of local air pollution that is harmful to human health, especially in frontline communities. And we need to do this while cleaning up electric generation. To ensure electric rates don't stand in the way of rapid transformation, we need to balance bill manageability and cost containment – that is, rates must be understandable and workable for customers, while also incentivizing behavior that, over the long term, helps keep system costs low for everyone.

A wide variety of cost-reflective prices are possible.

Although it is generally important for electric pricing to be cost-reflective, that does not by itself fully determine what the pricing faced by customers, including completely new customer types, should look like. There are key decisions to be made concerning, for example:

- Which costs are most important to reflect – the embedded costs previously incurred, or new costs that may be triggered;
- Whether new uses are reasonably contained in an existing class, and whether they should be responsible for embedded costs in the same way as other class members based on the existing class's load shape; and
- How much complexity is needed for reasonable alignment with costs (and how much complexity will be understandable and workable for customers).

Additionally, as some leading utilities have used discounted pricing to help jump-start electrification, it is worth noting that discounting from cost-reflective pricing can be an appropriate means of ensuring growth for the benefit of all customers, such as in the economic development context. Similarly, discounting the cost of charging may be a reasonable strategy for incentivizing vehicle electrification early in the transition. The approach to such discounting may need to vary by use case, depending, for example, on whether the need for the discount is

driven by factors that should automatically resolve as the market matures (such as low utilization of public chargers early on) or by a more straightforward need to attract new entrants to the electric vehicle marketplace.

One size will not fit all fleets.

Realistically, there is not going to be a single truck charging rate that works perfectly for all truck owners.

First, as discussed by various speakers during the December 15 workshop, use cases are tremendously variable, and some will include a lot more flexibility than others. For example, in his presentation for the North American Council for Freight Efficiency, Dave Schaller pointed out that medium- and heavy-duty fleets include yard tractors that travel only 10–20 miles per day, delivery vans and trucks traveling an average of 123 miles per day, and regional- and long-haul tractor trailers traveling 450–600 miles per day.[1] He went on to explain how these vehicles will need to rely on a wide array of sites for charging, including at depots, delivery destinations such as ports and stores, and on-route sites such as rest areas and truck stops.[2] In the presentation for the City of Chicago, presenters emphasized the must-run nature of many of the vehicles in the municipal fleet such as police, fire, and snow removal, a requirement that makes electrification more difficult and limits the flexibility of the vehicles that are electrified.[3]

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[1] Dave Schaller, *Trucking Perspective: NACFE* (Dec. 2021) at 23, *available at* https://www.icc.illinois.gov/downloads/public/informal-processes/Doc%201_ICC%20Workshop%20NACFE%20Slides%2012-15-21.pdf.

[2] *Id.* at 25.

[3] Kevin Campbell, Samantha Bingham & Jared Policicchio, *Government Perspective on Electric Vehicle Fleets* (Dec. 2021) at 8–10, https://www.icc.illinois.gov/downloads/public/informal-processes/Doc%202_2021.12.15_ICC%20WORKSHOP_City%20of%20Chicago_Final.pdf.

Second, the size of fleets matters. For example, the need for demand-based rate structures may vary depending on fleet size. The largest fleets have the potential to become electric loads with significant grid-level impacts, which may mean that managing their peak demand, at least during system peak periods, becomes extremely important. . But for smaller fleets, the impact of individual peak demands (whether at system peak or not) may be mitigated by diversity of charging behavior where there is a large number of small loads, and it may be more important to make sure everyone's consumption occurs at approximately the right times – whether that means avoiding charging when the grid is most constrained or making the most of renewable generation when it is available.

Third, prior experience with electric pricing matters, because commercial electric pricing looks entirely unlike buying diesel fuel by the gallon, and it can be extremely complex. Some fleets belong to corporate entities in industries other than transportation or freight; they may be very seasoned at managing complex electric pricing. Other truck or fleet owners, however, may have essentially no experience with purchasing electricity beyond the requirements of a small office; they are going to have their hands full learning to charge and operate electric vehicles, and are unlikely to have the capacity to also get comfortable with complex electric pricing at the outset. Ideally, through rigorous education and outreach efforts by utilities, electric fleet customers will learn to grapple with complex electric pricing sooner rather than later; however, especially where default tariffs are highly complex and customers very inexperienced, some customers may need to be spared some of the complexity early on, but should still experience incentives that teach them to manage their consumption.

As part of the larger education and outreach efforts by utilities to fleets that will be necessary as part of this transition, utilities need to learn from their fleet customers how current electric rates

would encourage or inhibit cost-effective fleet electrification. This should include learning to what degree fleet customers understand existing commercial/industrial electricity rates. It should also include an understanding of the impact any existing pass-through charges, such as from an RTO, would have on a fleet looking to electrify. For example, in a MHDV electrification proceeding currently underway in New Jersey, various parties have identified certain PJM capacity charges that are passed through to certain retail customers as potentially driving unmanageable bills, prospectively while electrification is underway.[4] For the MHDV sector to effectively transition, a variety of rates that seek to alleviate those concerns will be necessary.

Robust Vehicle-Grid Integration is essential to ensuring lower total cost of ownership, lower grid costs, better environmental outcomes, and greater resiliency.

Vehicle-Grid Integration (VGI) includes intentional management of vehicle charging (sometimes called V1G) as well as intentional discharging from vehicle batteries to the grid (V2G) to achieve various outcomes. It consists of a portfolio of charging behaviors, which are distinct from one another and yield different kinds of value. For example, charging can be managed to avoid charging at peak times (when the grid is constrained), or to prioritize charging when renewable generation resources are productive and there is a risk of curtailment. It can also be managed to prevent a customer's total demand from spiking, either at all times or during particular periods. Price signals can also be deployed to encourage energy to be discharged from vehicles (or other storage devices) to the grid at the most beneficial locations and times.

[4] *See* Paul Chernick, Comment Letter In Response to September 15, 2021 Panel Discussion: How to Determine Rates (Sept. 29, 2021), at 14, *available at* https://publicaccess.bpu.state.nj.us/DocumentHandler.ashx?document_id=1247445; Jigar Shah, Comment Letter In the Matter of Medium and Heavy Duty Electric Vehicle Charging Ecosystem, Rates Track (Oct. 5, 2021), *available at* https://publicaccess.bpu.state.nj.us/DocumentHandler.ashx?document_id=1247799.

VGI needs to be a high priority when evaluating the suitability of electric rates for charging electric trucks and buses. Properly integrating vehicles with the grid through a pricing environment that allows EV charging customers to benefit financially from better integration behavior has numerous benefits. First, from the standpoint of vehicle or fleet ownership, optimal VGI should (in an efficient pricing environment) reduce the cost of charging. Lower operating costs lower the total cost of ownership, and the expectation of a lower total cost of ownership translates to a greater willingness to electrify in the first place. Second, optimal VGI should enable the integration of more intermittent renewable generation, which will help Illinois meet its clean energy goals at lower cost to all. Third, optimal VGI should reduce the need for grid build-out to support the future low-carbon transportation system, reducing costs to all ratepayers and reducing the risk of multi-year delays in vehicle electrification that could otherwise result from grid capacity lagging behind the anticipated electrification need. Furthermore, over and above the ongoing financial benefits of VGI, strategic use of vehicle-to-grid and vehicle-to-building capabilities can yield resiliency benefits, allowing public services and businesses to continue operating in the event of grid outages.

Given that there are a variety of approaches to managing charging behavior, how fleet owners in fact manage their charging will depend on the price signals vehicle owners experience and the tools they have to respond to those signals. For example, volumetric price signals generally incentivize shifting load, whereas demand-based signals generally incentivize flattening load (either entirely or during particular periods[5]). To achieve optimal environmental and grid outcomes, the electric prices experienced by EV charging customers should ensure that the

[5] Non-coincident demand charges provide an incentive for spreading out consumption as much as possible over the course of a whole day, while time-of-use demand charges incentivize spreading out demand within a set period but also preferentially charging during comparatively lower-cost periods.

particular charging behavior that is optimal for containing system costs and optimizing renewables integration is the same charging behavior that will result in the lowest customer bills.

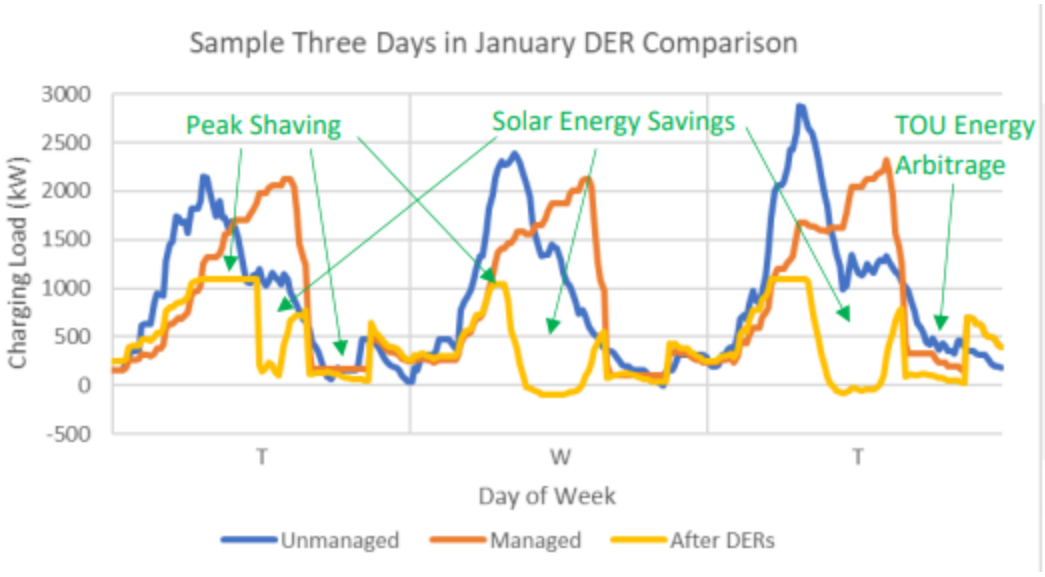
As well, utilities should be tasked with exploring how to successfully effect vehicle-grid integration, including through rates, as well as incentives for DER deployment.

Efficient electric pricing can incentivize co-location of clean distributed energy resources with fleet charging.

In the near term it is essential that pricing be manageable for early-adopter fleets and their anticipated load profiles. However, over time, it is important to note that depots housing fleets may ultimately be ideal locations for distributed energy resources such as solar PV and storage, and that pricing that rewards fleets for optimal load shapes – even if achieving those load shapes is operationally based solely on the vehicles and their charging needs – could provide an important incentive for fleets to install such distributed resources and use them to mitigate their inherent inflexibility.

For example, in a 2021 study performed for EDF, GNA evaluated the charging needs and costs of hypothetical class 8 electric fleets in California, based on the actual duty cycles of real fleets of diesel trucks currently in operation. As the figure below shows, while managed charging is somewhat successful at shifting the time of a customer's peak demand and the magnitude of that peak, the addition of solar and storage makes it possible for them to both dramatically modify the timing of consumption and mitigate their peak demand.[6]

[6] Gladstein, Neandross & Associates, *California Heavy-Duty Fleet Electrification Summary Report* (Mar. 2021) at 46, *available at* http://blogs.edf.org/energyexchange/files/2021/03/EDF-GNA-Final-March-2021.pdf.



2.) During one of the presentations, it was asserted that hybrid vehicles were a better answer for Southern Illinois due to the lack of publicly available EV charging. The ICJC posits that this is incorrect.

With more than 80% of EV drivers installing a level 2 (J1772) charging station in their home, it is possible to get around in Southern Illinois although still more difficult than in most of Illinois. Using the PlugShare EV charging app, we reviewed two cities in Southern Illinois that appear to be in a serious public charging desert.

Cairo, IL

Cairo is the southernmost city in Illinois. It has a population of about 2,150. The closest public chargers appear to be in Sikeston, MO, about 32 miles away. The public charging stations in Sikeston are a single level 2 charger and four DC fast charger plugs (connectors). Traveling from Cairo to Cape Girardeau, MO is 33 miles. Here there are four separate level 2 chargers and one large EV charging station with four DC fast charger plugs and one level 2 charger plug. Traveling from Cairo to Carbondale, IL is 53 miles. In this area, there are seven level 2 charging stations with a total of 11 charging plugs.

The vast majority of households are likely to be able to fully charge an EV with level 1 (120v) or level 2 to be able to drive to larger nearby cities where they can access public charging stations to recharge for the return trip if needed, such as for older EVs with only 75-100 miles of range total.Even in a small hamlet like Cairo, residents can reach public chargers in nearby cities with most EVs.

Sparta, IL

Sparta is another location without public charging capabilities in the city or nearby. Traveling north to St. Louis is 51 miles where there are many DC and level 2 charging stations and many plugs. Traveling east to Mt. Vernon is 55 miles where there is one large DC fast charging station with eight DC fast charging plugs. Also in the area are other charging stations with a total of seven level 2 charging plugs. Traveling to Festa, MO is 70 miles away. In the Festa area there are four charging locations with a total of ten DC fast charging plugs and two level 2 plugs.

As with Cairo, all EV drivers would likely have, minimally, level 1 or more likely level 2 charging capability in their homes. However, residents in Sparta, population 4,300, can easily reach public chargers with most modern and even many older EVs. That said, Sparta would be a challenge in cold weather for older EVs and without sufficient planning for travel.

Conclusion

It is possible for people living in Southern Illinois in places like Sparta and Cairo to drive EVs. At present, those with older EVs, such as the Nissan Leaf or the VW e-Golf with a range of about 75 to 100 miles, would be challenged to drive beyond their immediate home area without significant planning. Owners with modern EVs with a 250-mile or higher range, can traverse Southern Illinois and beyond with reasonable planning. Realistically there are fewer of these older vehicles because fewer were manufactured. With increasing numbers of newer EVs being

manufactured, and the fact that those vehicles have much larger batteries and hence range, this range challenge will recede quickly. Costs for batteries have also dramatically fallen in recent years, and combined with larger vehicle production numbers and more competition between manufacturers, trends have been putting and are expected to continue to put downward pressure on electric vehicle prices even with dramatically increased range.

Regarding the need for public charging, it is a false equivalence to compare the number of gasoline stations we have today against the number of EV charging stations needed. Drivers with internal combustion engine (ICE) vehicles get all their fuel at public gasoline stations. More than 80% of EV drivers "fuel" at home or at work and only charge at public charging stations while traveling on vacation and the like. Therefore, the main fueling station for an EV is at home, not at public charging stations. Therefore, it is recommended that all EV drivers have level 2 chargers installed in their home, and that local and state governments, as well as workplaces, deploy chargers to meet charging needs outside their residences - including at businesses and located at parking spaces.. For traveling, we need DC fast chargers in public areas, especially along highways and major roadways. The best places are parking lots such as Wal-Mart and Meijer stores and at malls where parking is plentiful and there are things to do in the area.

3.) Comments in Response to City of Chicago's presentation on December 15 regarding ongoing CNG purchases.

While the City's commitment to move to electrification of its fleets is commendable, ICJC believes that the process seems unnecessarily slow and cumbersome, with too many constraints mentioned that are not as big of a problem as the City seems to claim.

For example, in the streets and sanitation part of the presentation, it was mentioned that they tried electrification of garbage trucks seven years ago, but even though they learned lessons, they are ordering compressed natural gas (CNG) street sweepers and will not make this part of their fleet operations a focus for electrification. First, if the trial effort was seven years ago, transitioning to these vehicles should be explored anew, since the entire field of fleet electrification and related technology has changed significantly in seven years. Second, with the price of natural gas skyrocketing, it is not fiscally responsible to be ordering CNG street sweepers or other CNG fleet vehicles at this time. And third, the greenhouse gas emissions CNG entails---when you consider methane leakage of gas lines and other emissions during the production and distribution of natural gas—make CNG as bad or worse than diesel fuel and should not be the fuel of choice for the City.

The City mentioned the cost of charging stations as a barrier. However, with the grants already available through the VW settlement funds and the money that is in the Climate and Equitable Jobs Act, as well as the federal infrastructure money for fleets, the upfront cost barrier will be significantly lower. This is the ideal time to go big on electric fleet vehicles and chargers, and to apply to all those sources immediately rather than undertake the slow, methodical process to a zero-emission transition, which will take many years to implement, that the City has outlined.

Another challenge that was mentioned was the lack of staff who are charging experts, and the need for technical assistance to help the City design for future needs. There is money in those same grants mentioned above that can be used for this purpose. And there is already training available for operators and maintenance staff that has been used in other cities, so it would not be difficult to make the appropriate contacts to learn from experts elsewhere or to bring them to Chicago to lend their expertise.

4.) There is still a startling lack of emphasis on medium- and heavy-duty vehicles, particularly trucks.

During the September 9th workshop, members of the ICJC asked both Ameren and ComEd point blank whether they had considered how to accommodate the growing number of electric trucks that should be coming onto Illinois' roads. Unfortunately, neither utility had a satisfactory answer. Ameren, which actually has programs geared towards transit and school buses – with associated rates – essentially said that consideration of other medium- and heavy-duty vehicles was too difficult to contemplate at this juncture and failed to give any indication that they would be doing so any time in the near-future. ComEd, to the best of our knowledge, has not broached the subject of how to accommodate medium- and heavy-duty electric vehicles and successfully integrate them into the system. This misalignment with a future that needs to include zero-emission trucks and buses – which must be part of the landscape in order to achieve key state climate and clean energy targets – is mirrored in the emphasis of the ICC workshops to date. Stakeholders had to fight to ensure that medium- and heavy-duty vehicles were a substantial part of the workshop process, and even the fleet workshops have been too focused on light-duty vehicles (for example, the presentation from Phil Jones, while informative, largely emphasized rate design for public charging, which will primarily be used for light-duty fleets). Indeed, most fleets will be utilizing depot charging, which is more complex and will require significantly different considerations than public charging – and should be more of a focal point in workshops and utility plans.

As discussed by Warehouse Workers for Justice and Little Village Environmental Justice Organization, the diesel emissions from buses and trucks are disproportionately concentrated in communities that bear the burden of the cumulative impact from multiple emission sources. More specifically, given the fact that intermodal rail yards, which are co-located with

warehouses, distribution centers and diesel truck traffic, are largely located in predominantly BIPOC communities. This creates public health crises for workers and residents in the surrounding communities. As such, continued emphasis primarily on how to electrify passenger vehicles cannot be allowed to continue. To be clear, the only way ICC can appropriately address EV Act goals of investment in eligible communities most impacted by transportation-related air pollution is to focus planning and funds on medium- and heavy-duty electrification.

It is also important to acknowledge and address the ways in which diesel pollution in communities of color and worker exploitation are inextricably linked– segmented subcontracting models have allowed massive warehousing and logistics companies to circumvent environmental regulations and to exploit their workers. Illinois' most vulnerable communities have been continually silenced when speaking out against the harmful health impacts of diesel pollution by warehousing companies justifying their pollution by arguing that they provide communities with jobs, but these jobs tend to be unsafe, unstable and low-paying. Because the system's robbing directly impacted communities of both good jobs and clean air are one and the same, Warehouse Workers for Justice (WWJ) and Little Village Environmental Association (LVEJO) call on ICC and the utilities to promote environmental justice in working-class communities of color by prioritizing MHD EV investment in these areas and using EV Act funds to incentivize the creation of good, green jobs in areas being disproportionately harmed by diesel pollution. ICJC stands with frontline partners LVEJO and WWJ in advocating for transparency of labor practices and consideration of working conditions for manufacturers and purchasers benefitting from EV Act funds.

Lastly, the historic pollution of working-class communities of color has necessitated that working people in these areas become experts in these issues so that they can advocate for their

own health and survival. Grassroots members of organizations like LVEJO in Little Village and Warehouse Workers for Justice in Joliet have run air monitoring projects to collect air pollution data across their communities, and have worked to create transformative solutions designed by and for members of these communities. ICJC calls on ICC and the utilities to honor and tap into this expertise by consulting directly-impacted residents living close to ports, intermodals, warehouses and highways in the design and implementation of EV Act funding distribution plans for medium- and heavy-duty vehicle electrification.

The approach to electrifying light-duty vehicles cannot be assumed to easily translate to medium- and heavy-duty vehicles. Medium- and heavy-duty vehicles, by virtue of their much bigger batteries, will have fundamentally different power requirements than their light-duty counterparts – and their resulting impact on the grid will need to be planned for differently, in order to avoid unnecessary build-out and grid interruptions, as well as ensure any build-out that is legitimately needed will be completed in a timely manner. As well, larger vehicles have significantly different operational profiles; while Level 2 charging may be sufficient for the majority of passenger vehicle charging, the same will not be true for trucks and buses. Trucks and buses will also be substantially less likely to utilize public charging (with the exception of long-haul vehicles that will need to top up en route). And, large commercial fleets will need much *more* infrastructure than light-duty vehicles at their depots. Planning for this infrastructure in a proactive way should be non-negotiable; utilities have a fundamental role to play where they can reach out to fleets to understand their needs – near- and longer-term – and provide them the technical assistance and pathway to transition in a way that captures key benefits. Longer-term planning that plans for growth of electric vehicles in a particular fleet and in the market as a whole, in line with state policies, will be necessary in order to future proof and save money down

the line; planning for infrastructure build-out at the start will prevent avoidable site and grid costs. As well, having dedicated staff – particularly to liaise with smaller fleets – may be a critical addition that will help businesses successfully transition to a new vehicle and/or electricity rate.

It is critical to recognize that utility companies cannot expect to treat all medium- and heavy-duty vehicle charging in a uniform manner. Delivery vehicles, school buses, and long-haul tractor trailers, for example, all have different needs in terms of range, charging, and rates; as such, utilities cannot assume a "one size fits all" approach will work. Similarly, there must be a recognition that small and large businesses will be at different starting points in terms of technological knowledge and availability of capital; a focus on small businesses, rather than the low-hanging fruit that is likely to be easier for utilities to tap, is critical for equity reasons. In addition, distinctive approaches may be needed for small versus large fleets, particularly since their grid impacts may be dissimilar.

Finally, consideration of how best to ensure that electric rates enable managed charging while providing manageable bills for businesses that want to transition to zero-emission vehicles will be crucial. For example, some EV charging customers in other states have found utilities' demand charges to be difficult or even impossible to navigate during this early phase, whether due to their actual charging needs or the ability/capacity of commercial customers navigating a relatively nascent technology to manage novel and highly complex energy pricing. Given the importance of fuel cost in the total cost of ownership analysis, Illinois' utilities will likewise need to identify rates that may function as a barrier to electrifying Illinois fleets, and promulgate tailored solutions that ensure that bills will be more manageable for the relevant fleets –

including offering programs for on-site distributed energy resources and robust education on how to effectively manage charging.

To facilitate effective growth in the medium- and heavy-duty electric vehicle market, the ICJC suggests that targets and metrics should be put in place that have an appropriate focus on medium- and heavy-duty vehicles. For example, the number of charging stations that are installed through these programs should be differentiated by the type of vehicle that they are equipped to support (i.e., Level 1, Level 2, DCFC); as well, deployment of chargers should specify whether their location is public or at depots, given that the latter location is significantly more likely to be used for medium- and heavy-duty vehicles. More information on the types of metrics and targets that are useful can be found in the context of the California Transportation Electrification Framework proceeding at the CA Public Utilities Commission.[7]

5.) The ICJC rejects the claim that electric trucks are financially infeasible at this time.

While the NACFE presentation was illuminating, the claim that electric trucks are three times the cost of conventional vehicles is misleading. While it is true that upfront cost is still higher for electric trucks than for their diesel counterparts, battery prices are declining rapidly - given that batteries largely drive the cost differential of electric vehicles, this decline is going to reduce the price gap more and more. As well, the claim that these vehicles are *three* times the cost is disputable. According to Advanced Clean Transportation, electric vehicles "*could* be up to double the cost of diesel."[8] Considering that estimation was in 2020, and technology is

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[7] California Public Utilities Commission, *Transportation Electrification Framework - Energy Division Staff Proposal* (Feb. 3, 2020), https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M326/K281/326281940.PDF; *Comments of Environmental Defense Fund on Transportation Electrification Framework Staff Proposal (Sections 3.4 and 11.3)* (May 11, 2020), https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M337/K426/337426272.PDF.

[8] Advanced Clean Tech News, *Calculating TCO for EVs: Where to Find the Greatest Long-Term Cost Savings for Medium- and Heavy-Duty Vehicles* (Aug. 26, 2020),

advancing rapidly, leading to declining prices, even that prediction is likely out of date by now. The Tesla Semi appears to confirm that trend,with prices on its website that are very close to conventional semi tractor costs: $150,000 for a 300 mile range truck and $180,000 for a 500 mile range truck, in addition to a $20,000 reservation fee.[9] As IEA points out, "the growing demand for electric trucks is pushing manufacturers to broaden product lines" and "truck makers such as Daimler, MAN, Renault, Scania and Volvo have indicated they see an all-electric future"[10] - factors that will drive market development and continue to drive down prices. This trend is confirmed by a recent MJ Bradley study finding that "based on existing manufacturer announcements there will be multiple companies selling EV in virtually all MHD market segments by 2025, including 58% of the major OEMs."[11] However, even leaving that aside, the more important point is that total cost of ownership of electric vehicles, by virtue of operational and fuel cost savings, is favorable relative to diesel vehicles. For the large majority of vehicle types, total cost of ownership will be on par with diesel vehicles by 2025, and almost all vehicle types will achieve parity by 2030 - even without incentives.[12] Some analysis suggests even For the largest class 8 vehicles with current technology, the return on investment from a higher cost electric truck can be recovered within 3 years.[13] Undoubtedly, battery costs continue to be a main driver in the higher initial prices of larger electric vehicles. But those prices have

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https://www.act-news.com/news/calculating-tco-for-medium-and-heavy-duty-evs/#:~:text=Today%2C%20the%20price%20of%20a,as%20double%20its%20diesel%20counterpart.

[9] Tesla, *Semi,* https://www.tesla.com/semi

[10] International Energy Agency, *Global EV Outlook 2021,* https://iea.blob.core.windows.net/assets/ed5f4484-f556-4110-8c5c-4ede8bcba637/GlobalEVOutlook2021.pdf.

[11] MJ Bradley and Associates, *Medium- and Heavy-Duty Vehicles: Market Structure, Environmental Impact, and EV Readiness* at 21 (Jul. 2021), jhttps://www.mjbradley.com/sites/default/files/EDFMHDVEVFeasibilityReport22jul21.pdf.

[12] *Id* at 23-24.

[13] Forbes, *Cheap Batteries Could Soon Make Electric Freight Trucks 50% Cheaper to Own Than Diesel,* (Mar. 16, 2021), https://www.forbes.com/sites/energyinnovation/2021/03/16/plummeting-battery-prices-mean-electric-freight-trucks-could-be-50-cheaper-to-own-than-diesel/?sh=64e8c9dc418c.

declined precipitously over the last decade, and those declines are expected to continue going forward, further shortening the ROI period and growing the cost savings and profits large commercial EVs can create over their operational lifetime. As well, given commercial vehicles can typically operate many more miles than light duty passenger vehicles, the cost per mile metric should receive greater focus. Not to mention that the societal benefits of transitioning these vehicles will be enormous - "eliminating tailpipe emissions from new medium- and heavy-duty vehicles by 2040 could provide *up to $485 billion* in health and environmental benefits as a result of pollution reductions."[14]

It is also worth noting that policy will drive market deployment. As a key example, in the last two months, the number of states that have adopted California's Advanced Clean Truck rule has ballooned from one to six states. MA, NY, NJ, OR & WA have all adopted the CA Advanced Clean Trucks (ACT) rule as of the end of 2021. With a combined population of 88m people, those states cover well over a quarter of the population of the entire country. As stated by the California Air Resources Board, the rule requires that manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. The ACT is one of a suite of complementary policies that will be needed to meet goals of the Multi-State Medium- and Heavy-Duty Zero-Emission Vehicle Memorandum of Understanding (MOU) signed by 16 states, Washington, D.C. and Quebec (Quebec and Virginia joined last year).[15] The goal in the

[14] *Id.* at 4, citing Environmental Defense Fund, *Clean Trucks, Clean Air, American Jobs* at 1 (Mar. 2021); https://www.edf.org/sites/default/files/2021- 03/HD_ZEV_White_Paper.pdf.
[15] Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, https://www.nescaum.org/documents/mhdv-zev-mou_12-14-2021.pdf.

MOU is that 30% of new truck sales must be zero emission vehicles by 2030, and 100% by 2050. The number of states formally adopting the ACT rule is expected to only grow, as will the market for electric trucks, consequently driving down prices with increased production.

As noted, charging infrastructure will be an additional cost for companies and entities using medium and heavy duty EVs going forward, and it is an area where the ICC should focus attention on how utilities can help ease the burden and cost of transition to electric vehicles. Utilities can help lessen this burden in many ways, from minimizing or eliminating demand charges and providing favorable time of use charging rates to encouraging on site renewable generation.

Given the disproportionate environmental and health burdens fossil fuel powered trucks impose on lower income minority communities, utilities should specifically focus on electrifying freight vehicles in those areas with targeted and proactive outreach to entities operating large vehicles in and near those communities. Materials provided by WWJ and LVEJO on 12/15 included informative maps that show how major intermodal facilities, ports and warehouse aggregations are concentrated in areas where a high percentage of the population are minority groups as well as lower income. ALA also noted in its 12/15 presentation that nationally more than two-thirds of the population living in counties that fail to meet federal air quality standards are minorities. ALA's presentation also showed the $2.9b in health benefits achieved by an aggressive transition to electric vehicles in the Chicago metro region is almost as large as the $3.2b achieved by the entire state of Illinois. Though there is some overlap of the Chicago metro area into surrounding states, the analysis shows the huge benefits that can be achieved from pollution reductions from vehicles through electrification. Given that currently diesel vehicles are more polluting than gasoline vehicles, it reinforces the claim that electrifying larger freight vehicles will bring

disproportionate health benefits to both areas, particularly the Chicago metro area and its large minority population.

Given the inequity of exposure for people working in the freight industry as drivers, warehouse workers and intermodal staff, utility-funded freight-focused EV programs should be structured in a way to increase equity by providing the greatest increase in health and job quality to those in the industry most impacted by freight vehicle emissions now. Any decision on awarding financial incentives for electrification should utilize metrics such as whether drivers are directly employed by the corporation receiving funds rather than classified as contract employees, whether those employees received benefits such as health insurance and sick time and whether companies have been reprimanded for efforts by employees to bargain collectively.

6.) The ICJC recommends including utility responses within the workshop format.

A workshop involves discussion of ideas. While we are grateful for the opportunity to present our ideas about how best to prioritize utilities' beneficial electrification efforts, it is important to hear from the utilities themselves before they finalize and submit their plans this summer.

While formal presentations may not be needed from Ameren and ComEd, hearing their reactions to the presentations, their questions and concerns would be constructive. Without their responses it is us talking into a void. Back and forth discussion can help resolving potential differences of opinions, understanding potential roadblocks, arriving at mutually held desired outcomes and assessing what may be needed to get to them.

We suggest that Ameren and ComEd be asked for their reactions to ideas that are proposed, either at the end of each workshop or at the beginning of the following one. The latter would give them more time for thoughtful reflection on what has been presented.